

# Investigating efficiency and fake rate of Phase1

In the main config file for Phase1:

```
process.load('RecoPixelVertexing.PixelTriplets.quadrupletseedmerging_cff')
```

```
SeedMergerPSet = cms.PSet(  
    layerListName = cms.string('PixelSeedMergerQuadruplets'),  
    addRemainingTriplets = cms.bool(True),  
    mergeTriplets = cms.bool(True),  
    ttrhBuilderLabel = cms.string('hltESPTTRHBuilderPixelOnly')  
)
```

```
process.hltPixelTracks.SeedMergerPSet.addRemainingTriplets = cms.bool( True )
```

- If “True”, the seed merger will add all the triplets to the seed collection which could not be merged.
- For the results shown so far I kept it as “False”
- In the following slides I switched that to “True” and compared the efficiency/fakerate
  - Additional triplet NOT added ⇔ False
  - Additional triplet added ⇔ True
- Also the case where mergeTriplets are set False (what does it mean?)

# Efficiency and Fake rate for hltpixeltracks (Muon)

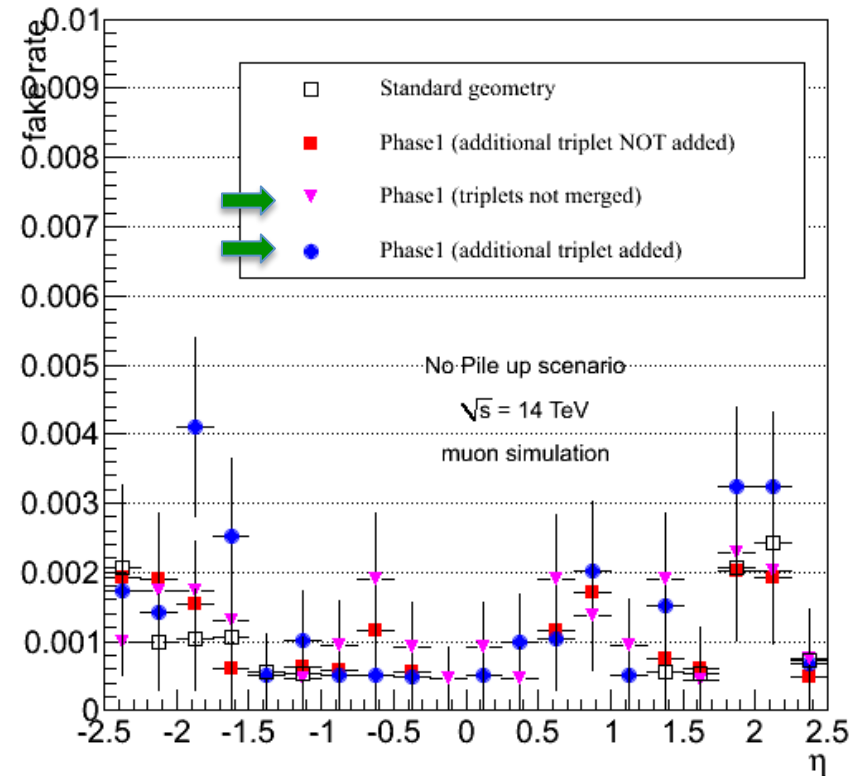
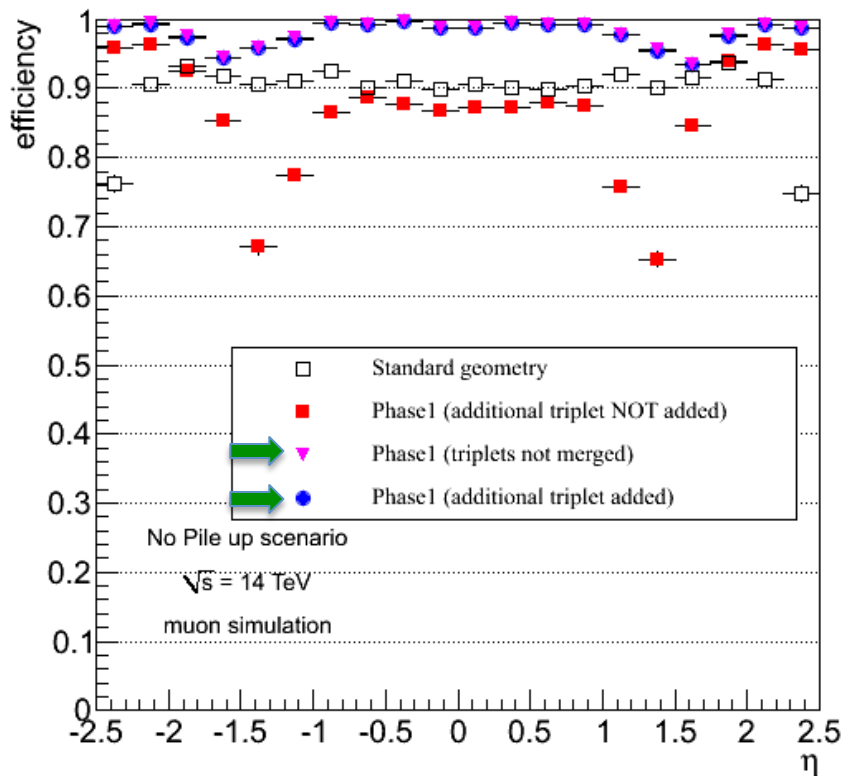
Comparing StdGeo with Phase1 with three cases:

(i) all remaining Triplets added and

(ii) all remaining Triplets not added

(iii) Triplets not merged (which means using triplets only)

No PU



Efficiency similar between all triplets and quad+all remaining triplets

In fake rate – difficult to tell

# Efficiency and Fake rate for hltpixeltracks (Muon)

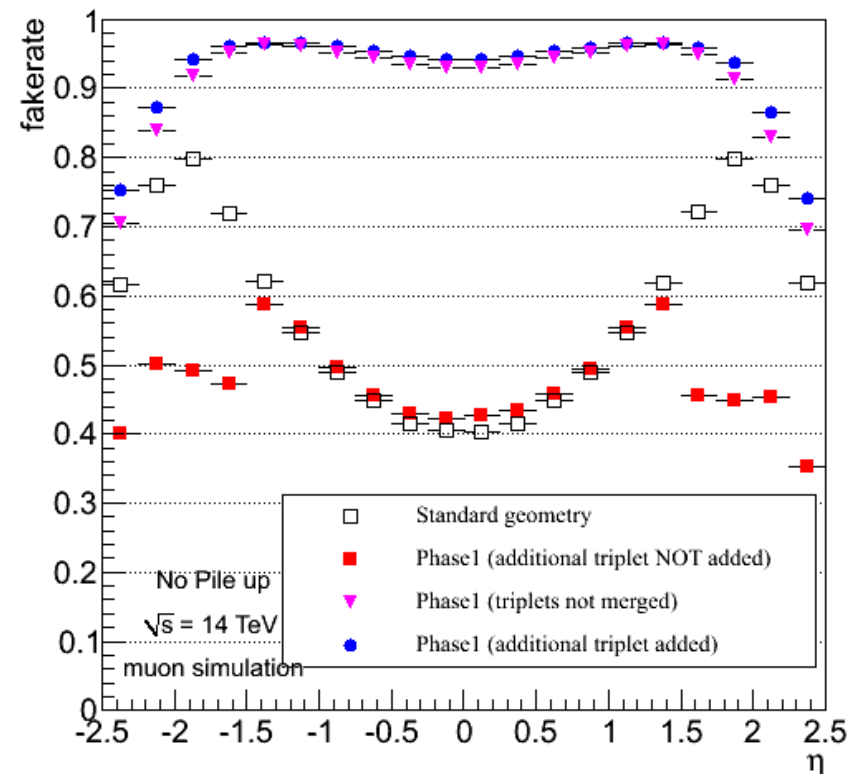
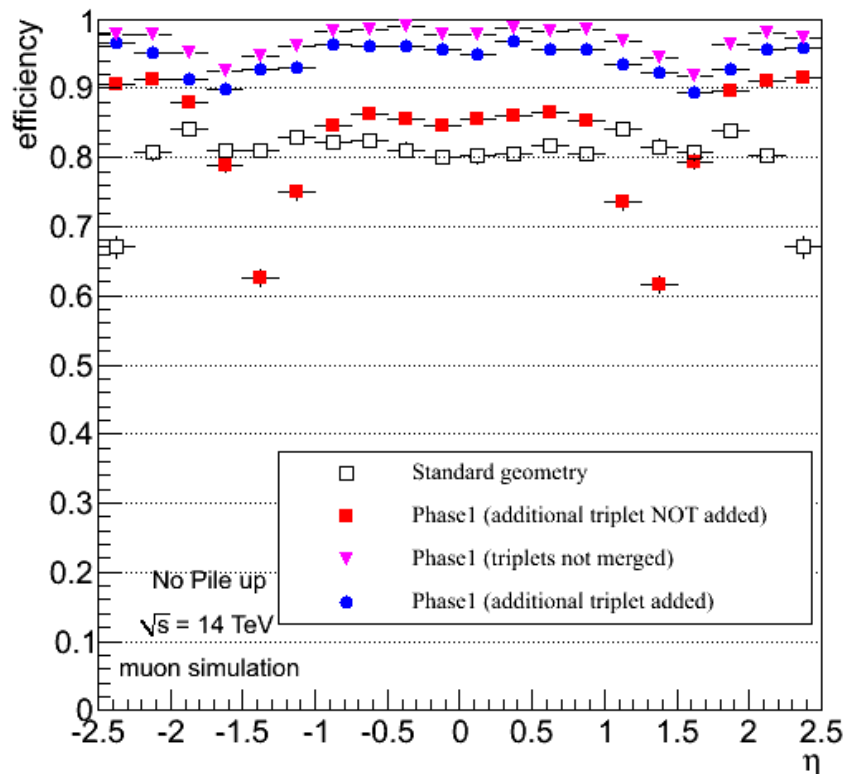
Comparing StdGeo with Phase1 with three cases:

(i) all remaining Triplets added and

(ii) all remaining Triplets not added

(iii) Triplets not merged (which means using triplets only)

50 PU



□ Efficiency and fake rate similar between all triplets and Quadruplet + All remaining triplets